UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
AT CHATTANOOGA

VINCENT SYSTEMS GMBH, *Plaintiff*, v. FILLAUER COMPANIES, INC. & MOTION CONTROL, INC., *Defendants*.	)	Case No. 1:23-cv-2 Judge Atchley Magistrate Judge Dumitru

MEMORANDUM OPINION AND ORDER

Every patent infringement case includes a claim construction phase. Claim construction "is the judicial statement of what is and is not covered by the technical terms and other words of the claims." *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001). Consistent with its obligation under *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996) to construe a patent's claims, the Court adopts the claim constructions as set forth below.

I. BACKGROUND

Plaintiff Vincent Systems GmbH alleges that Defendants Fillauer Companies, Inc. and Motion Control, Inc. infringe claims 1, 3, 4, 6, and 9 of U.S. Patent No. 8,491,666 (the "asserted patent"). The asserted patent discloses a prosthetic finger element that may be used individually or as part of a prosthetic hand or arm. '666 Patent, col. 1:5-8.[1] According to Plaintiff, non-party TASKA Prosthetics manufactures the infringing prosthetic hands, and Defendants sell them throughout the United States. [Doc. 91 at 5].

[1] To allow for greater specificity, references to the asserted patent are made to the column and line number in which the quoted material appears. For all other documents in the record, citation is made to the CM/ECF stamped document and page number, rather than to the internal pagination or designation of any filed document. Where possible, the Court refers to more specific subdivisions within a document.

The asserted patent claims priority to a 2008 German patent application. In 2011, Plaintiff applied for a patent at the United States Patent and Trademark Office. The application was granted, and the asserted patent issued in 2013. [Doc. 24-1 at 2]. Relevant here, the asserted patent claims a finger element comprising "a servo drive for the first hinge connection with a motor with a drive shaft" and "a coupling mechanism between the first hinge connection and the second hinge connection, wherein the threaded screw is supported on the drive shaft form fittingly and axially movable as well as guided in axial direction by separate guidances." '666 Patent, col. 6:3-11. The parties' disputes derive from this claim language.

Plaintiff and Defendants each submitted opening and response claim construction briefs. [Docs. 84, 91, 95, 96]. The Court then held a *Markman* hearing and took the matter under advisement. This matter is now ripe for the Court's review.

II. CLAIM CONSTRUCTION PRINCIPLES

"[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The meaning of patent claims is a matter for the court and not the jury to decide. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996). Thus, "[c]laim construction aims to define the proper scope of the invention and to give meaning to claim language when the jury might otherwise misunderstand a claim term in the context of the patent and its file history." Peter Menell, *et al.*, *Patent Case Management Judicial Guide*, § 5.1.4.3 (Fed. Jud. Ctr. 2016).

Claim construction requires the Court to determine "the meaning of claim terms from the perspective of the person of ordinary skill in the art." *Immunex Corp. v. Sanofi-Aventis U.S., LLC*, 977 F.3d 1212, 1221 (Fed. Cir. 2020). "The words of a claim 'are generally given their ordinary

and customary meaning.'" *Phillips*, 415 F.3d at 1312 (*quoting Vitronics Corp. v. Conceptronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The "ordinary and customary meaning" of a claim term is the meaning the term would have to a person of ordinary skill in the art at the time of the invention. *Id.* at 1313. A person of ordinary skill in the art is presumed to read the claim term "not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313. Thus, the Court must "first look to, and primarily rely on, the intrinsic evidence, including the claims themselves, the specification, and the prosecution history of the patent, which is usually dispositive." *Id.* at 1218 (Fed. Cir. 2020) (*quoting Personalized Media Commc'ns, LLC v. Apple Inc.*, 952 F.3d 1336, 1340 (Fed. Cir. 2020)); *Phillips*, 415 F.3d at 1317. "[T]he specification is key—it is 'highly relevant to the claim construction analysis' and the 'single best guide to the meaning of a disputed term.'" *Immunex Corp.*, 977 F.3d at 1218 (*quoting Phillips*, 415 F.3d at 1315). The specification includes the written description of the invention and the manner and process of making and using it, as well as the preferred embodiment – "the best mode contemplated by the inventor or joint inventor of carrying out the invention." 35 U.S.C.A. § 112(a). Expert and inventor testimony, dictionaries, and learned treatises all comprise extrinsic evidence. *Id.* Such evidence "may be necessary to inform the court about the language in which the patent is written. But this evidence is not for the purpose of clarifying ambiguity in claim terminology." *Markman*, 52 F.3d at 986.

III. ANALYSIS

The parties' claim construction disputes concentrate on terms found in claims 1(d), 1(e), and 1(f) of the asserted patent. Specifically, the parties primarily dispute the meaning of "servo drive," "coupling mechanism," "axially movable," and "guidances." The Court will address each of these disputes below.

A. Servo Drive

The first disputed term is "servo drive." This term appears in claim 1(d) of the asserted patent as follows: "a servo drive for the first hinge connection with a motor with a drive shaft and a worm gearing with a threaded screw and a cog segment that engages to the threaded screw." '666 Patent, col. 6:3-6. Plaintiff contends that no construction is necessary because the intrinsic evidence confirms the term's ordinary meaning is "a motor with a drive shaft." [Doc. 91 at 12]. In the alternative, Plaintiff requests that "servo drive" be construed in accordance with this ordinary meaning and as "a motor with a drive shaft." [*Id.*]. Defendants, on the other hand, argue that a "servo drive" is a well-known device and should be construed as "a self-contained feedback system that controls mechanical movement." [Doc. 84 at 23].

"Claim construction begins with the language of the claims." *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1370 (Fed. Cir. 2003). "Words of a claim are generally given their ordinary and customary meaning, which is the meaning a term would have to a person of ordinary skill in the art after reviewing the intrinsic record at the time of the invention." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008). And the specification—as part of the intrinsic record—provides "the primary basis for construing the claims." *SimpleAir, Inc. v. Sony Ericsson Mobile Commc'ns AB*, 820 F.3d 419, 430 (Fed. Cir. 2016) (quoting *Phillips*, 415 F.3d at 1315). Considering these principles, the Court concludes that the intrinsic record establishes that the ordinary meaning of "servo drive" is "a motor with a drive shaft," and the Court will adopt Plaintiff's alternative construction.

Start with the claim language. The asserted patent claims "a servo drive . . . with a motor with a drive shaft." '666 Patent, col. 6:3-6. This language suggests that the claimed "servo drive" has or includes a motor with a drive shaft. The specification reinforces this interpretation in

multiple instances. First, the specification, consistent with the claim language, explains that "[t]his servo drive encloses a motor with or without integrated gear transmission to a drive shaft." '666 Patent, col. 2:14-15. This language indicates that the "servo drive" encloses, or includes, a motor to a drive shaft. Second, in similar fashion, the specification teaches elsewhere that "[t]he drive **11** encloses at least an electric motor as servo member, optionally also a gearing unit and/or for a use for instance as autarkic finger-prosthesis an electric voltage source as well as control electronics (battery, accumulator, etc.)." '666 Patent, col. 4:9-13. Both excerpts from the specification reveal that the "servo drive" at minimum encloses a motor, while other components, such as a gearing unit and control electronics, are optional.

"The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *SimpleAir, Inc.*, 820 F.3d at 430 (quoting *Phillips*, 415 F.3d at 1316). The Court concludes that construing "servo drive" as "a motor with a drive shaft" advances this maxim and comports with the asserted patent's claim language and specification.

Defendants resist this conclusion, but none of their arguments prove persuasive. First, Defendants contend that this construction renders superfluous the claim's use of "servo drive." [Doc. 84 at 25]. If a "servo drive" is "a motor with a drive shaft," Defendants say there is no reason for the claim to use "servo drive" when it already mentions a motor and drive shaft. [*Id.*]. "It is true that 'interpretations that render some portion of the claim language superfluous are disfavored.'" *SimpleAir, Inc.*, 820 F.3d at 429 (quoting *Power Mosfet Techs., LLC v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004)). But the Court questions whether construing "servo drive" as "a motor with a drive shaft" deprives "servo drive" of its meaning. To the contrary, the claim's phrasing makes sense when viewed in light of the specification.

Recall that the specification indicates that the "servo drive" encloses a motor to a drive shaft, but it also "optionally" encloses other components, such as a gearing unit and control electronics. '666 Patent, col. 2:14-15, 4:9-13. The claim then identifies "a servo drive . . . with a motor with a drive shaft" and omits the optional components discussed in the specification. '666 Patent, col. 6:3-6. Thus, the claim is identifying what components make up the claimed "servo drive" among the options discussed in the specification. In this situation, it makes sense for the claim to use "servo drive" and "with a motor with a drive shaft" together; the phrasing specifies the type of "servo drive" being claimed. Even if the Court's construction does render "servo drive" superfluous, "[t]he preference for giving meaning to all terms . . . is not an inflexible rule that supersedes all other principles of claim construction." *SimpleAir, Inc.*, 820 F.3d at 429.

Defendants also argue that the ordinary meaning of "servo drive" necessarily includes electronics that manage a self-contained feedback system. [Doc. 95 at 24]. Dr. Ben-Tzvi, Defendants' expert, adopts this position and characterizes a "servo drive" as a self-contained system that includes electronic circuitry to control the electric motor. [Doc. 84-2 at ¶ 46, 49]. He relies on various dictionary definitions to support his description. [*Id.* at ¶ 51; Doc. 84-13].[2] According to Defendants, because a person of ordinary skill in the art understands that a "servo drive" necessarily includes a self-contained feedback system, the asserted patent had no reason to include that terminology. [Doc. 95 at 24]. It would be akin to saying "round tire" even though all tires are necessarily round. [*Id.*]. Fair enough. But the specification "is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). And, as discussed above, the specification identifies certain features as optional, including "control electronics (battery, accumulator, etc.)." '666 Patent, col. 4:9-13.

[2] The definitions Dr. Ben-Tzvi cites are for "servomechanism" rather than "servo drive." Considering the different terms, the Court questions the value of the cited definitions.

That the specification describes "control electronics" as optional necessitates a finding that they are not mandatory features of the claimed "servo drive." Yet Defendants assert that "the servo drive must include electronic circuitry to control the electric motor." [Doc. 84 at 24]. Defendants' argument, in that sense, contravenes the intrinsic record. Moreover, the specification teaches that the control electronics "may be also arranged in the core **15** of the second phalanx **6**." '666 Patent, col. 4:13-14. A review of the asserted patent's figures reflects that the core of the second phalanx is not located within the "servo drive," which further underscores the specification's statement that control electronics are optional features of the "servo drive." '666 Patent, Figure 2. Ultimately, Defendants' proposed construction would require the claimed "servo drive" to have features that the specification explicitly deems optional.

Even if the Court agreed with Defendants that "servo drive" has an ordinary meaning of "a self-contained feedback system that controls mechanical movement," the Court would still construe the term as "a motor with a drive shaft." The Court would maintain this construction because the intrinsic record reflects that the patentee acted as a lexicographer. Indeed, "a definition of a claim term in the specification will prevail over a term's ordinary meaning if the patentee has acted as his own lexicographer and clearly set forth a different definition." *3M Innovative Props. Co.*, 350 F.3d at 1371. The specification states that the "servo drive encloses a motor . . . to a drive shaft" and discusses optional features. '666 Patent, col. 2:14-15, 4:9-13. The claim then refers to "a servo drive . . . with a motor with a drive shaft." '666 Patent, col. 6:3-4. In stating that the "servo drive" encloses a motor to a drive shaft, the specification's language "provides a strong signal of lexicography." *Astrazeneca AB, Aktiebolaget Hassle, KBI-E, Inc. v. Mut. Pharm. Co.*, 384 F.3d 1333, 1340 (Fed. Cir. 2004).

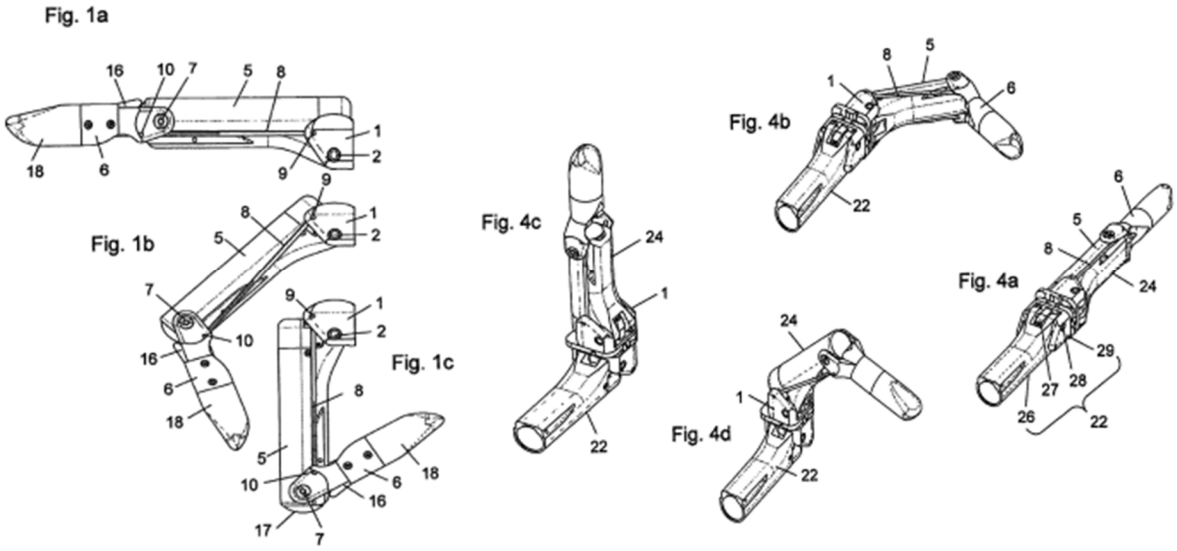
Defendants assert that the patentee did not clearly redefine "servo drive." [Doc. 84 at 23]. Stating what the term "encloses," however, is akin to providing a definition. And lexicography does not require "a statement in the form of 'I define _____ to mean _____,'"; "such rigid formalism is not required." *Mut. Pharm. Co.*, 384 F.3d at 1339. Assuming Defendants are correct that a "servo drive" has an ordinary meaning of "a self-contained feedback system that controls mechanical movement," the intrinsic record provides sufficient evidence to suggest that the patentee instead assigned an "unconventional meaning" to the term as "a motor with a drive shaft." *Bell Atl. Network Servs., Inc.*, 262 F.3d at 1269. Thus, regardless of which party is correct about the ordinary meaning of "servo drive," the Court reaches the same result and construes "servo drive" as "a motor with a drive shaft."[3]

B. Coupling Mechanism

The next disputed term comes from a phrase in claim 1(e), which recites "a coupling mechanism between the first hinge connection and the second hinge connection." '666 Patent, col. 6:7-8. Plaintiff requests that the phrase be afforded its ordinary meaning as a component that couples the first and second hinge connections in a mechanical way. [Doc. 91 at 17]. Defendants disagree and assert that the phrase is properly construed as "a component connecting and positioned within the space separating the first and second hinge connections." [Doc. 84 at 25]. The parties' dispute ultimately boils down to their differing interpretations of "coupling" and "between" as they are used in claim 1(e). For the following reasons, the Court will construe the disputed term as "a component that connects the first and second hinge connections in a mechanical way."

[3] To be clear, the Court already concluded above that the intrinsic record supports the view that "servo drive" has an ordinary meaning of "a motor with a drive shaft." The Court discusses the patentee's lexicography as an alternative holding in the event Defendants are correct about the ordinary meaning of "servo drive."

The Court begins with "coupling." The parties agree that "coupling mechanism" refers to the "spring bar connection" reflected in embodiment number eight of the asserted patent. They disagree, however, about what "coupling" means. Dr. Collins, Plaintiff's expert, posits that a "coupling" exists between components "if when you move one, the other moves or otherwise has some predictable action in response." [Doc. 96-7 at 9; Doc. 85-2 at ¶ 40]. The specification lends support to this interpretation. Indeed, the specification explains that "[t]he rotation movement of the first and second phalanges around the according rotation axes is coupled via a coupling mechanism (cf. FIG. **1***a* to *c* and FIG. **4***a* to *d*)." '666 Patent, col. 3:49-51. The referenced figures show this relationship; as the first phalanx **5** moves, so too does the second phalanx **6**:



That "rotation movement" is "coupled" reinforces Dr. Collins's definition of "coupling." As one component moves, so does the component to which it is "coupled." That is how the specification uses "coupling," and that is how Dr. Collins defines the term. Dr. Collins thus opines that a person of ordinary skill in the art would understand "coupling" to mean "that two components are constrained such that they move together." [Doc. 85-2 at ¶ 40].

Defendants propose a different construction. They cite to several dictionary definitions that define "coupling" as a device that "connects" things together. [Doc. 84-14]. Thus, Defendants and Dr. Ben-Tzvi interpret "coupling" as "connecting." [Doc. 84 at 29; Doc. 84-2 at ¶ 55]. The "coupling mechanism," under their definition, "connects" the first and second hinge connections together. The Court does not view Plaintiff and Defendants' definitions of "coupling" to be very far apart, if at all. What Dr. Collins describes as "coupling"—that when one component moves, so does the other—contemplates a connection between components, just as Defendants' proposed definition does. For the hinge connections to "move together" as Dr. Collins describes, there necessarily must be some connection between the two components. Even Plaintiff's briefing acknowledges the existence of a connection: a person of ordinary skill in the art, according to Plaintiff, "would understand 'coupling mechanism' to describe a physical connection between the hinge connections that constrains them such that they move together." [Doc. 96 at 29].

Plaintiff emphasizes that nothing in the asserted patent requires the "coupling mechanism" to form a "direct connection" between the first and second hinge connections. [*Id.*]. Once again, the Court does not detect a disagreement between the parties on this point. Defendants concede that they have never advocated for a "direct connection." [Doc. 95 at 27; Doc. 107 at 61]. Nor could they. The Federal Circuit has explained that "[t]he ordinary meaning of 'connected to' encompasses indirect linkages." *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1342 (Fed. Cir. 2013). That ordinary meaning holds true here.

Nothing in the intrinsic record demands a direct connection between the "coupling mechanism" and the first and second hinge connections. To the contrary, the specification explains that the "coupling mechanism" engages at "bearing bore **9** and **10**" of the carrier component and second phalanx respectively. '666 Patent, col. 3:52-57. Bearing bore **9** thus forms part of the carrier

component, and bearing bore **10** falls within the second phalanx. Critically, the specification describes the carrier component and second phalanx as being "adjacent" to "the rotation axes of the first and second hinge connections." '666 Patent, col. 3:6-11. This language makes clear that the "rotation axes" form part "of" the first and second hinge connections, but the "coupling mechanism" engages at places "adjacent" to the rotation axes—specifically, at the bearing bores of the carrier component and second phalanx. If the "coupling mechanism" engages at places "adjacent" to components of the first and second hinge connections, then the Court cannot read the asserted patent to require a direct connection between the "coupling mechanism" and the first and second hinge connections.[4] The Court ultimately concludes that the ordinary meaning of "coupling" is "connecting," with the caveat that the connection need not be direct.

The parties' next dispute centers on how to construe "between." Claim 1(e) recites "a coupling mechanism *between* the first hinge connection and the second hinge connection." '666 Patent, col. 6:7-8 (emphasis added). Plaintiff argues that "between" as used in claim 1(e) connotes a relationship between the first and second hinge connections. [Doc. 91 at 17]. A "coupling between" components, according to Dr. Collins, means that when one component moves, so does the other. [Doc. 85-2 at ¶ 40]. As discussed above, this interpretation finds support in the specification, which refers to "rotation movement" being "coupled via a coupling mechanism." '666 Patent, col. 3:49-51. The asserted patent's figures then show this relationship—a "coupling between" the first and second phalanges such that they move together. '666 Patent, FIG. **1***a* to **1***c*.

[4] Defendants contend that Plaintiff "conflates the hinge axes with the hinge connections." [Doc. 95 at 28]. The Court acknowledges that the asserted patent does not specifically identify the hinge connections with a reference number but denotes hinge axis **2** and hinge axis **7**. However, the asserted patent does discuss "the rotation axes *of* the first and second hinge connections." '666 Patent, col. 3:9-10 (emphasis added). For the rotation axes to be "of" the first and second hinge connections, the rotation axes necessarily must form part of the first and second hinge connections. Thus, because the "coupling mechanism" engages at places described as "adjacent" to "the rotation axes *of* the first and second hinge connections," then there need not be a direct connection between the "coupling mechanism" and the first and second hinge connections. The bearing bores, to which the "coupling mechanism" engage, are never described in the asserted patent as forming part of the first and second hinge connections.

Based on the intrinsic record, the Court construes "between" to denote a relationship among the first and second hinge connections. When read together, a "coupling between" components means that they have a connective relationship and move in tandem.

Defendants request that "between" be construed differently. "Between," in their view, means that the "coupling mechanism" is positioned within the space separating the first and second hinge connections. [Doc. 84 at 29]. Defendants cite to various dictionary definitions that define "between" in this way. [Doc. 84-15]. Those same dictionary entries, however, also define "between" more in line with what Plaintiff proposes and as "associating or uniting in a reciprocal action or relationship." [*Id.* at 4]. The use of "between," then, does not necessarily implicate geometric space, as that latter definition makes clear. To say that there is a link between mental and physical health does not mean one is physically positioned in the space separating them, but rather that a relationship exists "between" mental and physical health. So too here. When considering the intrinsic record, the use of "between" in the phrase "a coupling mechanism between the first hinge connection and the second hinge connection" is best read as referring to a reciprocal relationship rather than geometric space.[5]

Defendants also argue that Plaintiff's proposed construction of claim 1(e), if adopted, should trigger application of 35 U.S.C. § 112(f). [Doc. 84 at 27]. Though the Court has not fully adopted Plaintiff's proposed ordinary meaning, the Court will nonetheless address this argument. Section 112(f), the means-plus-function provision, permits a claim limitation to be described by its function rather than its physical structure, but in such cases, the limitation "must be construed

[5] This is not a case where the use of "between" clearly refers to positioning in geometric space as was the case in *Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1307 (Fed. Cir. 2000), where the claim read "only within a zone extending between." There, the use of "only" and "extending" in conjunction with "between" made clear that the reference was to geometric space. *Id.* Here, by contrast, "between" is paired with "coupling," and the intrinsic record suggests that a "coupling between" components signals a connective relationship among them.

to cover the corresponding structure, material, or other acts described in the specification and equivalents thereof." *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1318 (Fed. Cir. 2003) (citing 35 U.S.C. § 112(f)). When a claim limitation does not use the word "means," there is a rebuttable presumption that section 112(f) does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Claim 1(e) does not use "means," so a presumption exists that section 112(f) does not apply. '666 Patent, col. 6:7-8. And Defendants have not overcome this presumption because "coupling mechanism" connotes sufficient structure.

The Federal Circuit's decision in *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580 (Fed. Cir. 1996) proves instructive on this point. In that case, the court determined that a claim's use of "detent mechanism" failed to trigger section 112(f). *Id.* at 1583. The "detent mechanism" referred to a device that holds one component in a certain position relative to another. *Id.* Though this definition meant that "detent mechanism" was defined in terms of its function, or what it does, "[m]any devices take their names from the functions they perform," such as filters, brakes, and locks. *Id.* What mattered, according to the Federal Circuit, was not that a "'detent mechanism' is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art." *Id.* That "detent mechanism" had a generally understood meaning in the art was sufficient to preclude application of section 112(f), even though the term did "not call to mind a single well-defined structure." *Id.*

Greenberg warrants the same result here. Dictionary definitions confirm that "coupling" refers to a device that connects components together. [Doc. 84-14]. Those definitions describe function, but that posed no problem in *Greenberg* because the term had a generally understood meaning in the art. The same is true in this case. Dr. Collins describes a "coupling mechanism" as a device that causes components to move together, and Dr. Ben-Tzvi similarly interprets a

"coupling mechanism" to refer to when mechanical components are connected together. [Doc. 85-2 at ¶ 40; Doc. 84-2 at ¶ 55]. The consistency in dictionary definitions and expert opinions suggests that "coupling mechanism" has a generally understood meaning in the art. *Greenberg*, 91 F.3d at 1583. This remains true even if "coupling mechanism" fails to "specifically evoke a particular structure"; it suffices that the term conveys a class of structures to a person of skill in the art. *Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998) (holding that section 112(f) did not apply to "digital detector," even though the term was defined in terms of its function and did not refer to a precise physical structure to persons skilled in the art). Accordingly, the Court holds that section 112(f) does not apply and construes claim 1(e), on the terms set forth above, to mean "a component that connects the first and second hinge connections in a mechanical way."

C. Axially Movable and Guidances

The final disputed term is found in claim 1(f), which indicates that "the threaded screw is supported on the drive shaft form fittingly and axially movable as well as guided in axial direction by separate guidances." '666 Patent, col. 6:9-11. Plaintiff argues that claim 1(f) should be construed as a single phrase, while Defendants propose that "axially movable" and "as well as guided in axial direction by separate guidances" be construed separately. Regardless of the approach, the Court construes claim 1(f) to mean that "the threaded screw is able to move along the length of the drive shaft in a straight line direction but is limited in its axial movement by separate guidances."

The parties' dispute centers on their differing interpretations of "axially movable" and "guidances," so the Court will start with "axially movable." Plaintiff and Defendants' experts agree that "axially" denotes along the length or axis of something, in this case the device's drive shaft.

[Doc. 84-2 at ¶ 63; Doc. 84-3 at 15]. That leaves "movable." Defendants contend that "movable" means "able to move," both to a person of ordinary skill in the art and in accordance with dictionary definitions. [Doc. 84 at 13–14]. Plaintiff's expert generally agrees that "movable" references an ability to move, but Plaintiff asserts that when read in context of the entire claim and asserted patent, "axially movable" means "pushed onto the drive shaft." [Doc. 96 at 11]. For the reasons explained below, the Court will adopt Defendants' construction of "axially movable."

The intrinsic record supports Defendants' construction. Specifically, the asserted patent describes how in the prior art, the threaded screw is "fixed permanently" to the drive shaft. '666 Patent, col. 1:40-41. Plaintiff's invention departs from that arrangement, according to the asserted patent. "An essential feature of the invention encloses a decoupling of drive shaft and threaded screw in axial direction to the drive shaft." '666 Patent, col. 2:28-30. The threaded screw and drive shaft are thus decoupled, meaning they are not permanently fixed to one another, like in the prior art. The asserted patent goes on to say that "the axial movability of the drive shaft in the threaded screw has to be assured." '666 Patent, col. 2:33-34. Thus, the device's decoupling allows the threaded screw to move in the axial direction, or along the length of the drive shaft. Defendants' construction accounts for this "essential feature" of the invention.

Plaintiff made statements during prosecution and validity proceedings in Germany that reinforce the propriety of Defendants' construction. The relevant proceedings concerned a German patent application, to which the asserted patent claims priority. Though Plaintiff made the statements during German proceedings, the Federal Circuit treats statements made before foreign patent offices as "relevant to claim construction," so long as the statements concern a related patent application and do not implicate concepts unique to foreign patent law. *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1312 (Fed. Cir. 2014) (quoting *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357

F.3d 1340, 1350 (Fed. Cir. 2004)). The Court deems Plaintiff's statements during German proceedings to be "relevant to claim construction" under the circumstances. During prosecution of the German application, Plaintiff distinguished prior art as having a threaded screw "firmly attached to a drive shaft," and noted that its invention, by contrast, has a threaded screw "which is axially movable on the drive shaft." [Doc. 84-4 at 41, 43]. The German validity proceedings saw Plaintiff make similar statements. Plaintiff again argued that prior art has a threaded screw "mounted immovably" on the drive shaft, unlike its device, in which the threaded screw "can be moved axially on the drive shaft." [Doc. 84-6 at 10].

Dr. Collins also acknowledges the threaded screw's axial movability. As Plaintiff's expert, he opines that "the threaded screw need not move substantially in the axial direction relative to the drive shaft to achieve the goal of preventing large axial forces [from] being transmitted to the motor." [Doc. 85-4 at ¶ 36]. Dr. Collins thus recognizes that the threaded screw can move in the axial direction, even if the movement is not substantial. Taken together, the asserted patent's specification, Plaintiff's statements from the German proceedings, and Dr. Collins's opinions all acknowledge the threaded screw's ability to move along the length of the drive shaft.

Notwithstanding his acknowledgment of the threaded screw's axial movability, Dr. Collins explains that if Defendants' construction of "axially movable" is adopted, clarification is necessary to indicate that the threaded screw is axially movable only "when under an axial load of magnitude less than or equal to the value that would damage the motor." [*Id.* at ¶ 23]. Stated differently, there is some level of resistance to axial movement, and sufficient force must be applied before the threaded screw moves axially. [Doc. 85-2 at ¶ 46, 48]. The asserted patent's use of phrases like "form fittingly" and "pushed onto the drive shaft," in Dr. Collins's view, confirms the presence of resistance to axial movement. [*Id.* at ¶ 48].

The Court disagrees that the asserted patent's use of these phrases necessitates that a sufficient force requirement be read into the language of claim 1(f). When used in the asserted patent, "form fittingly" refers to the threaded screw's rotational direction, not its axial direction. '666 Patent, col. 2:30-31 (noting that the threaded screw "is in rotation direction form-fittingly); '666 Patent, col. 3:63-65 (describing the threaded screw "in rotation direction form fittingly"). And the Court does not view "pushed on the drive shaft," as used in the specification, to connote a force requirement for the threaded screw's axial movability. The asserted patent's only direct discussion of force comes when describing the prior art. '666 Patent, col. 1:40-42 (indicating that in the prior art, where the threaded screw "is fixed permanently to the motor shaft," "high forces may affect the motor"). Otherwise, there is no direct discussion of force, let alone a discussion of a specific amount of force necessary to cause the threaded screw to move axially while avoiding damage to the device's motor.

The specification and Plaintiff's arguments during the German proceedings make clear that a distinguishing feature of the invention entails a decoupling of the threaded screw and drive shaft. The decoupling of these components, in turn, renders the threaded screw able to move along the length of the drive shaft. Defendants' proposed construction captures this capability. As a consequence, the Court adopts Defendants' proposed construction and construes "axially movable" as used in claim 1(f) to mean that the threaded screw "is able to move along the length of the drive shaft in a straight line direction."

The parties' next dispute centers on the latter half of claim 1(f): "guided in axial direction by separate guidances." '666 Patent, col. 6:10-11. Plaintiff argues that the phrase should be construed as "limited in its axial movement by separate guidances preferably without play." [Doc. 91 at 21]. Defendants assert that this phrase is indefinite, or, in the alternative, propose a

construction of "at least two components designed to facilitate movement of the threaded screw along the length of the drive shaft." [Doc. 84 at 21]. Because a finding of indefiniteness would invalidate the asserted patent, the Court will address that argument first.

Courts will invalidate a patent for indefiniteness "if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with a reasonable certainty, those skilled in the art about the scope of the invention." *Grace Instrument Indus., LLC v. Chandler Instruments Co.*, 57 F.4th 1001, 1008 (Fed. Cir. 2023) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014)). The definiteness requirement "mandates clarity, while recognizing that absolute precision is unattainable." *Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, 936 F.3d 1353, 1359 (Fed. Cir. 2019) (quoting *Nautilus, Inc.*, 572 U.S. at 910)). "Indefiniteness must be proven by clear and convincing evidence." *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

Defendants contend that the intrinsic record fails to establish what a "guidance" is or what it means for the threaded screw to be "guided" in the axial direction. For these reasons, Defendants claim that the phrase is indefinite. The Court disagrees. The intrinsic record, despite Defendants' arguments to the contrary, contains sufficient detail to inform person of skill in the art of what the "guidances" are and what they do. Consequently, Defendants have not proven that claim 1(f) is indefinite by clear and convincing evidence.

Consider the specification. It states that the "guidances" are located "at both front edges of the threaded screw." '666 Patent, col. 2:37-38. The specification also explains that the "guidances" "are realized by a stiff preferably single-part frame" and "are preferably made of dry lubricating slide bearing bushing material like a PTFE-material or a slide bearing bronze." '666 Patent, col. 2:40-41, 4:6-8. This language speaks to what the "guidances" are. Moreover, the specification

explicitly identifies the function of the "guidances": they limit the axial movability of the threaded screw. '666 Patent, col. 3:66-4:1.[6] This statement from the specification aligns with Dr. Collins's view that a "guidance" operates to limit movement. [Doc. 85-2 at ¶ 49].

The examiner at the United States Patent and Trademark Office evidently had no trouble with deciphering claim 1(f)'s language, either. In his statement of reasons for allowance, the examiner cited the "guidances" language verbatim from claim 1(f) and concluded that the invention was "neither taught nor fairly suggested in the prior art." [Doc. 84-7 at 266]. The examiner's use of the challenged language in his reasons for allowance provides additional evidence that claim 1(f) is not indefinite. *Alifax Holding SpA v. Alcor Sci. Inc.*, No. 14-440, 2017 WL 1533430, at *7 (D.R.I. Apr. 27, 2017) (holding that a term was not indefinite, in part, because the patent examiner used the term in her reasons for allowance).

Defendants again invoke 35 U.S.C. § 112(f), this time to argue that claim 1(f) is indefinite because the asserted patent fails to recite any structure. [Doc. 95 at 21]. Section 112(f), as discussed above, applies special construction rules to means-plus-function claims. Because the relevant language in claim 1(f)—"guided in axial direction by separate guidances"—does not use the word "means," there is a rebuttable presumption that section 112(f) does not apply. *Williamson*, 792 F.3d at 1348. Defendants have not overcome this presumption.

When assessing the applicability of section 112(f), "the essential inquiry remains 'whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Zeroclick, LLC v. Apple, Inc.*, 891 F.3d 1003, 1007

[6] As part of their indefiniteness argument, Defendants emphasize that in one place, the asserted patent teaches that the threaded screw is "limited in its axial movability by two guidances preferably without play." '666 Patent, col. 3:66-4:1. Elsewhere, however, the specification explains that the threaded screw is inserted between the guidances "with a small axial play." '666 Patent, col. 2:42. Defendants contend that "preferably without play" and "small axial play" are inconsistent. Not so. To be sure, it would be inconsistent for the asserted patent to say "small axial play" in one place and "without play" in another. But the asserted patent says "*preferably* without play." "Small axial play" can occur between components, even if its is preferable, but not required, for there to be no play at all. [Doc. 91 at 26].

(Fed. Cir. 2018) (quoting *Williamson*, 792 F.3d at 1348). Courts can examine the entire intrinsic record and relevant extrinsic evidence when determining whether a claim term recites sufficiently definite structure. *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1356 (Fed. Cir. 2011), *overruled in part on other grounds by Williamson*, 792 F.3d at 1349. Defendants argue that the claim language and specification fail to identify any structure associated with the "guidances," and that failure renders claim 1(f) indefinite.

The record could be viewed as somewhat mixed regarding the meaning of "guidances." Defendants point to dictionary definitions that define "guide" in terms of "directing" or "leading" movement, but those same entries also define the term as a device "acting to regulate" movement. [Doc. 84-12 at 4, 7, 10]. Moreover, Dr. Collins opines that "guidances" are well-understood in the art to refer to a class of structures that constrain movement, while Dr. Ben-Tzvi posits that a person of skill in the art would not readily understand the term "without further explanation or context." [Doc. 96-7 at 12; Doc. 95-2 at ¶ 20]. The specification, however, tracks Dr. Collins's definition when it discloses that the threaded screw "is limited in its axial movability by two guidances." '666 Patent, col. 3:66-4:1.

On this record, the Court concludes that Defendants have not overcome the presumption that section 112(f) does not apply. The specification, rather notably, supports Dr. Collins's characterization of "guidances" as a class of structures that limit movement. It poses no problem that "guidances" refer to a class of structures rather than to a single, particular structure. *Personalized Media Commc'ns, LLC*, 161 F.3d at 705. And it poses no problem that "guidances" may be defined in terms of their function, i.e., that they act to limit movement. *Id.* What is dispositive for purposes of the section 112(f) analysis is that "guidances" connote sufficient structure to a person of skill in the art. *Zeroclick, LLC*, 891 F.3d at 1007.

Even if the Court agreed that section 112(f) applied, the Court would nonetheless decline to find claim 1(f) indefinite based on the asserted patent's failure to recite structure. True, if the specification fails to disclose adequate corresponding structure for a means-plus-function claim, the claim is rendered indefinite. *Williamson*, 792 F.3d at 1351–52. The "guidances" operate to limit the threaded screw's axial movement, and the specification correspondingly indicates that the guidances, made of "a stiff preferably single-part frame," are positioned "at both front edges of the threaded screw," with the threaded screw having "small axial play" between the guidances. '666 Patent, col. 2:36-42. Thus, even when construed as a means-plus-function claim, the specification discloses sufficient structure to preclude a finding of indefiniteness.

For many of the reasons already discussed, the Court construes "guided in axial direction by separate guidances," as the phrase is used in claim 1(f), to mean that the threaded screw "is limited in its axial movement by separate guidances." The specification echoes this construction in stating that the threaded screw "is limited in its axial movability by two guidances." '666 Patent, col. 3:66-4:1. Defendants take a different view. They contend that their proposed alternative construction—the guidances "facilitate movement of the threaded screw along the length of the drive shaft"—aligns with the invention's distinguishing characteristic, which is to ensure the threaded screw's axial movability. [Doc. 84 at 22].

To say the threaded screw is limited in its axial movability, in Defendants' view, contravenes the invention's purpose. The Court sees things differently. The inventive concept, i.e., the threaded screw's axial movability, is still maintained even if the guidances limit that axial movability to a certain extent; the point is that in the prior art, the threaded screw is fixed permanently to the drive shaft, meaning it could not move axially at all along the length of the drive shaft. Here, the threaded screw remains capable of moving along the length of the drive shaft,

as the Court's earlier construction reflects, despite being limited in that axial movement by the guidances. The Court therefore construes the latter part of claim 1(f) to mean that the threaded screw "is limited in its axial movement by separate guidances."

Despite largely adopting Plaintiff's proposed construction for this part of claim 1(f), the Court declines to include "preferably without play" as Plaintiff proposes. The Court agrees with Defendants that it would be odd to denote that something is "preferable" as part of a claim construction. [Doc. 84 at 21]. A patent's claims are designed "to provide notice of the boundaries of the right to exclude and to define limits." *Vascular Sols. LLC v. Medtronic, Inc.*, 117 F.4th 1361, 1370 (Fed. Cir. 2024) (quoting *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1347 (Fed. Cir. 2010)). To claim something is "preferable" does not do much in the form of delineating boundaries. Moreover, the language of claim 1(f) itself does not implicate the concept of "play." '666 Patent, col. 6:9-11. For these reasons, the Court will not include "preferably without play" in its construction of claim 1(f).

IV. CONCLUSION

For purposes of clarity, the Court's claim constructions are set forth below:

Term	Construction
"servo drive"	"a motor with a drive shaft"
"a coupling mechanism between the first hinge connection and second hinge connection"	"a component that connects the first and second hinge connections in a mechanical way," with the caveat that the connection need not be direct
"the threaded screw is supported on the drive shaft form fittingly and axially movable as well as guided in axial direction by separate guidances"	"the threaded screw is able to move along the length of the drive shaft in a straight line direction but is limited in its axial movement by separate guidances"

Within **14 days** of the entry of this order, the parties are **ORDERED** to confer and file a joint status report that (1) includes a proposed schedule for the infringement phase of the litigation and (2) states the parties' positions on the referral of this matter to mediation.

SO ORDERED.

/s/ Charles E. Atchley, Jr.
CHARLES E. ATCHLEY, JR.
UNITED STATES DISTRICT JUDGE